PESTICIDE USAGE MEETING

Can we increase our understanding of geographic specificity?

February 26, 2018

Can we increase our understanding of geographic specificity?

- Why is this important?
  - An understanding how and where pesticides are used is vital for understanding the likelihood of exposure

- A few terms:
  - **USE** – Refers to application instructions as described on the labels
  - **USAGE** – Refers to actual applications, generally in terms of quantity applied or units treated

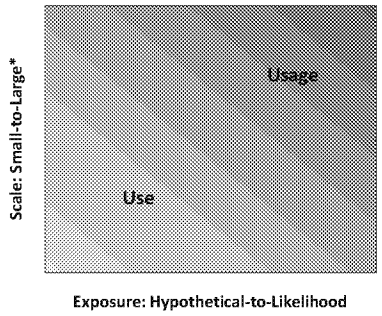
Use and Usage Data

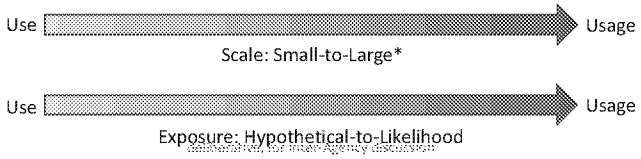
- Both USE and USAGE data can be valuable
- To understand whether use or usage data are more relevant for an analysis, you need to understand the scale and objectives of the analysis
  - What question(s) are you trying to answer?

Scale and Objectives

*This is a gradient, and should not be viewed as dichotomus.

- As you move from a small to a larger scale, usage data generally become more appropriate.
- There may be times when usage data are useful at the individual field-scale.

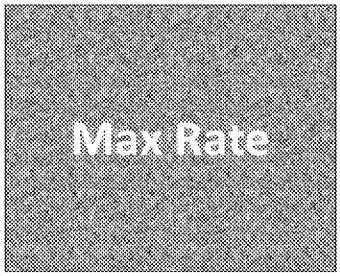




Step 1

Is there a potential for an individual to be impacted?

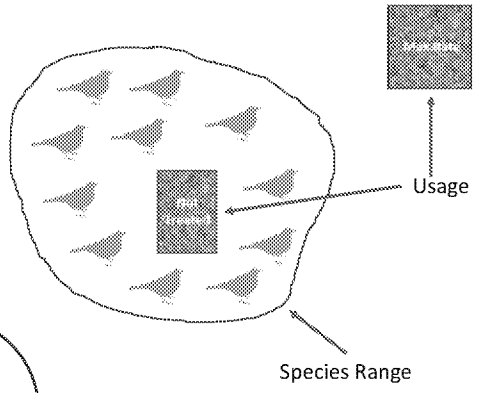
Use data are appropriate - It is hypothetically possible for a use site to be treated at the maximum application rate and for an individual to be exposed to that maximum rate.

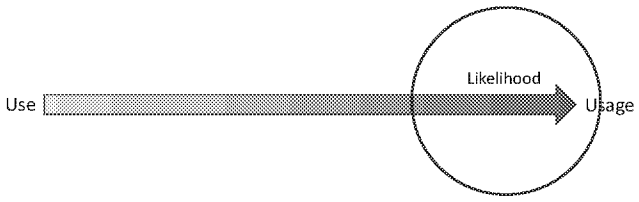


Step 2

Is it likely for an individual to be exposed to a pesticide at the maximum labeled rate?

Usage data are appropriate – The likelihood of an individual being impacted depends on a variety of things, including how the chemical is actually used in the species' range.

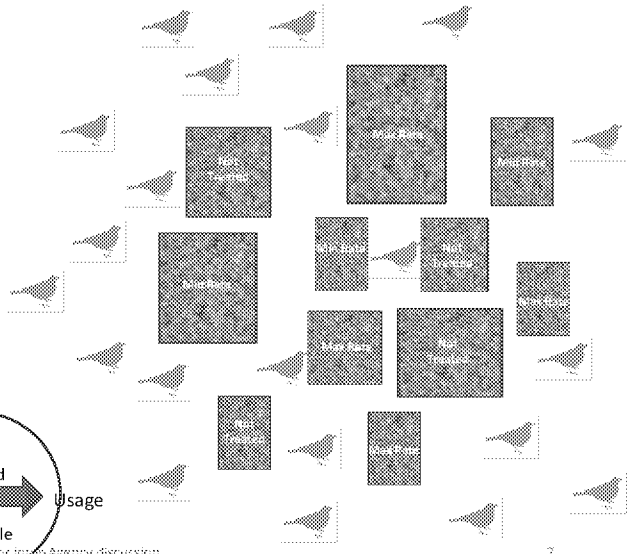




Step 3

What is the likelihood of adverse effects to the population?

Usage data are more appropriate – The likelihood depends on a variety of things, including how the chemical is actually used in the species' range. In reality, it is not likely that (1) a pesticide will be applied either on all potential use sites in a geographic area or at the maximum labeled rate on all potential use sites, OR (2) that all individuals in a population will be exposed at the maximum labeled rate.



Use Data (Chlorpyrifos Example)

- Final BE and BO assume that every potential use site has an application at the maximum labeled rate
- The math:
  - **1,156,000,000** acres of potential agricultural use sites in the continental US for chlorpyrifos (including cropland, pasture, and rangeland)
    - Based on the CDL data used in the BE and BO
  - If we assume an application of 1 lb a.i./acre for each potential use site (which is less than the maximum labeled rate for most chlorpyrifos agricultural uses), it means that **> 1 billion** lbs of chlorpyrifos is applied in one year –for just for ag uses
  - **2.4 billion** acres of potential mosquito adulticide and 'wide area' uses in US, then we'd assumed that **>2.4 billion** lbs of chlorpyrifos is used in one year

For ag and non-ag combined, assuming just a single application below the maximum label rate, we'd assume >3.4 billion lb of chlorpyrifos are applied annually

Usage Data (Chlorpyrifos Example)

- Based on average annual Chlorpyrifos usage data:
  - **< 8 Million** lb are used in the US (on ag crop sites)
  - **< 14 Thousand** lb are used in the US (mosquito control)

- Based on average annual insecticide usage data:
  - Approx. **60 Million** lbs of insecticides are used in all sectors

By relying on use data, we are assuming that orders of magnitude more chlorpyrifos is being used per year in the US than all insecticides combined

Use Assumptions

- By relying on USE data only in the BEs and BOs we are clearly significantly over-estimating the likelihood of exposures (and, thus, risks)

- USAGE data can help inform an understanding of the likelihood of exposure at a field- and geographic-scale

Can we increase our understanding of geographic specificity?

- Currently, the geographic specificity of usage data is generally at the state level

- Opening up the discussion:
  - Are there currently available usage data that may have a finer resolution than state-level?
  - Any other data that could be considered in the longer term?